



$$\begin{aligned}
 & \text{The } \mathcal{L}^2 \text{ norm of } f \text{ is defined as } \|f\|_2 = \left(\int_{\mathbb{R}^n} |f(x)|^2 dx \right)^{1/2} \\
 & \text{The } \mathcal{L}^1 \text{ norm of } f \text{ is defined as } \|f\|_1 = \int_{\mathbb{R}^n} |f(x)| dx \\
 & \text{The } \mathcal{L}^\infty \text{ norm of } f \text{ is defined as } \|f\|_\infty = \operatorname{ess\,sup}_{x \in \mathbb{R}^n} |f(x)| \\
 & \text{The } \mathcal{L}^p \text{ norm of } f \text{ is defined as } \|f\|_p = \left(\int_{\mathbb{R}^n} |f(x)|^p dx \right)^{1/p} \text{ for } 1 \leq p < \infty \\
 & \text{The } \mathcal{L}^0 \text{ norm of } f \text{ is defined as } \|f\|_0 = \int_{\mathbb{R}^n} 1 dx = \text{volume of support of } f
 \end{aligned}$$